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ABSTRACT

The main body of this document consists of three presentations given at a conference on the management of change. The conference provided each participant the opportunity to formulate, plan, and implement desired change at particular institutions in a more sophisticated fashion. In the first presentation, three conceptual models of executive behavior and decisionmaking in a complex organization are discussed -- i.e., the rational approach, the political approach, and the organizational structure and processes approach. A variety of case studies illustrate these models. The second presentation reviews the research-development-diffusion, social interaction, and problem-solver perspectives employed by most authors in the field of dissemination and utilization of knowledge for the purposes of change. The authors explain how these three perspectives can be brought together in a "linkage model," describe the general factors which contribute most to dissemination and utilization, and discuss the implications of these factors for the practitioner. The last presentation analyzes and criticizes four major change theory models: the mechanical, the systems, the organizational analysis, and the anthropological. (Author/DN)

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the Management of Change

Edited by MICHAEL BRICK and ANDREW A. BUSHKO

Community College Center
TEACHERS COLLEGE / COLUMBIA UNIVERSITY / NEW YORK, N.Y.

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PREFACE

A great many people were responsible for transforming The Management of Change from an idea to a conference to a publication. We would like to thank these people. First, there is Walter E. Sindlinger, who during the past year and the preceding decade has contributed immeasurably to the Community College Center. There are also those who through hard work helped transform the articles in this monograph from tape recordings to the printed word. They are Sandra Timmermann, Anita Dutt, Virginia Dearing, Sondra Sklaver, and Mary Howard. Then, there is our grammarian, Barbara R. Brick, who wrestled hard attempting to translate speeches into proper written form. Finally, we would like to express our gratitude both to Teachers College, Columbia University, and the Kellogg Foundation for their generous support of the activities of the Community College Center.

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INTRODUCTION

For more than a decade the Community College Center at Teachers College, Columbia University, has sponsored a great number of professional development conferences for administrators and faculty working in community colleges. Over the years, our lecture halls and seminar rooms have been graced by the insights and concepts of such people as Ivar Berg, Harold Hodgkinson, Edmund Gleazer, Charles Hurst, and William McGill. The topics examined and discussed have been diverse, ranging from collective bargaining to pluralism in higher education to computer assisted vocational guidance. Each of these programs in its own way was exciting and, I believe, made the improvement of higher education just a little more possible.

Of all the programs the Center has sponsored, the summer work conference on the management of change, held in June of 1972, was one that perhaps most of all captured the imagination of the people who were fortunate enough to hear and interact with our guest speakers. The work conference had a single but enormously elusive objective: to enable each participant to formulate, plan, and implement desired change at particular institutions in a more sophisticated fashion. To attain this goal, each conference participant was asked to formulate a change strategy in response to a complex situation described in a "case study." In addition, a series of guest experts made presentations and led discussions that focused on both the theoretical and applied aspects of change in complex institutions. The distinguished presentations of these guest speakers form the main body of this publication. But before discussion of their presentations, I would like to describe the interesting manner in which this conference was developed.

It was in the Seminar in Community College Administration during the fall of 1971 that the idea for the conference first arose. One topic of discussion was professional women in higher education, with particular reference to various employment and personnel policies. As the seminar proceeded, the conversation increasingly focused upon the issue of how an administrator can implement and manage change in an institution. Our responsibility in this matter was succinctly stated by one of our guests when he said, "We all want change but are stuck with how to do it. Why don't you people try to help us out?" As the other administrators at the seminar nodded agreement to this request, we at the Center knew that our work was cut out for us.

It was a long way from that meeting in October 1971 to June 12, 1972, when the conference on the management of change began. The first problem we had to face was the issue of how to deal within the

space of a few days with a topic as broad and complex as institutional change. After several meetings and the consideration of a number of approaches, we decided on the format of a case study with input by a series of experts who would bring a variety of perspectives to the conference. The next crucial matter we had to deal with was the selection of speakers. This was a particularly difficult problem since not many people really know much about institutional change, and because we wanted only the best of that small group. Moreover, the presentations had to offer three different points of view while dealing with the same case study. As you will see from the following texts, all of our wishes for the conference were well fulfilled by the work of Professors Guth, Havelock, and Ianni.

Once our guest experts had agreed to participate in the conference, the Center staff had to perform the tasks related to a major workshop. Perhaps the most important of these was the writing of the case study to be used. We felt that we had to develop a special case study that represented many of the critical aspects of contemporary community colleges. To do this, we combined both research descriptions and the practical experiences of our staff members into what we all felt was the description of an undesirable but unfortunately rather typical situation.

As the dates of the conference grew nearer, we all knew that our conference planning would actually count for very little if for some reason our guest experts simply did not "click." Whatever fears we had were quickly and completely dismissed by the presentation of William Guth. Professor Guth, who has had extensive experience in the examination and evaluation of institutional behavior in business firms, interwove a variety of illustrative case materials with the exposition of three conceptual models of behavior in complex organizations. The main thrust of this presentation was that the effective manager has to conceive of his organizational responsibilities in all three conceptual ways and must design and integrate his action programs in ways which are consistent with all three conceptual perspectives.

The next day Ronald Havelock undertook the difficult job of reviewing and explicating the major themes in his massive and brilliant Planning for Innovation Through Dissemination and Utilization of Knowledge. In his presentation he reviewed the three major perspectives employed by most authors in the field of dissemination and utilization of knowledge for the purposes of change. Professor Havelock also explained how these three perspectives can be brought together in a "linkage model." He described the general factors which contributed most to dissemination and utilization and discussed the implications of these for the practitioner.

Our last guest expert was Francis A. J. Ianni, who spoke about an anthropological perspective on institutional change. In his presentation Professor Ianni discussed four major kinds of change theory, analyzing and criticizing each as he proceeded. The most viable model, as Ianni persuasively argued, was the anthropologically-based model, for it was the one perspective that placed values in a role of central importance and that related values to the social system in which people live.

When you read the papers by Professors Guth, Havelock, and Ianni, you will realize how very difficult it would be for anyone to add substantially to their thoughts on the management of change. I would, however, like to comment briefly on a matter that I think is very important; what I would like to call "the ethics of change."

Change, it seems to me, is a generic quality of our human experience in the twentieth century. One need only look at the tragically accelerated cycle of war and peace we have inflicted upon ourselves, or try to keep up with the developments in just one field of science, to see that this is true. Indeed, while some may cogently argue that change is illusion only and constancy the inherent nature of things, I would submit that, at least in our lifetime, it is change rather than stability that has been at the center of our attempts to deal with ourselves and our world.

If this is so, I suggest that it is very shortsighted for any person who is responsible for an institution that is supposed to serve the public interest to be ignorant of the dynamics of change within the organization. It is perhaps even worse than a physician who does not know how a human body functions, for while this sort of ignorance may cruelly squander a single, irrevocably lost life, ignorance of change on the part of an institutional leader may mean -- indeed, probably does mean -- the slow but nonetheless highly effective denial and diminution of those very services and qualities which make our society humane.

Perhaps the heart of the problem is that a great many institutional leaders have forgotten Ortega's admonition that life, at its most essential level, invariably is doing one thing rather than another. There is no way, because we are all caught in the human situation, that any of us can escape this blunt, terrifying fact. We are without choice, constantly forced to make choices. And with each choice there are inexorable consequences. In turn, each of the consequences of each of the choices brings its own special form of responsibility. Thus, because of choice and because of the consequences of choices, we live, and should recognize that we so live, in a complex web of myriad responsibilities.

Man must deal with his situation. Short of death, there is no way to escape it. Change, choice, and responsibility are parts of that situation. Thus, it would seem that to be an ethical person, one must recognize the situation, make choices, and be willing to accept responsibility for those choices. What then can be said of the institutional leader who is ignorant of the dynamics of change? What can be said of the leader who allows the institution to flounder, who denies the public the services it expects from its institutions, because he does not know how to effect change in the institution? Now, at this point, I am not using the word "know" in terms of ability or capacity, but rather in terms of knowledge. I am willing to concede that human fallibility more often than not prevents us from accomplishing what we attempt. This is a matter of capacity. But to fail because we are ignorant of that which is accessible is unethical.

At the deeper level, then, this is why the Community College Center sponsored its summer work conference on the management of change. I suppose in our own way we at the Center are trying to make knowing people of the administrators who attended our conference. It was our attempt to bring from ignorance to knowledge those who were willing to make that painful journey. And have no doubts about it, the journey is painful. The knowledge of where we are, our limitations, and our responsibilities by their very nature are painful.

The anguish of the journey from an ignorance to a knowledge of how things are is well represented by the path of Jack Burdan in Robert Penn Warren's All the King's Men. At the beginning of the book, Burdan says he is an idealist. As he puts it, if he does not think about something, if he does not have an idea about something, it does not exist. This is what allows him to work for Willie Stark, to live with the corruption of power without compunction, and, in short, to walk out on life. But life in its own inexorable way, through love and loneliness, through death and remorse, through waste and recrimination, forces Jack into a realization of his situation and the responsibility of his choices. In the end, he sees that he is inextricably involved in humanity and he is responsible because he is able to be responsible. It was the purpose of the work conference on the management of change to make Jack Burdans of us all.

One final thought must be added. Every conference consists of participants as well as speakers and planners. The people who attended our work conference were among the finest I have met. They were serious without being solemn, they had fun without being foolish, and most importantly they opened themselves to the event to which they had been invited and in their openness and acceptance enriched

themselves and us. Thus, the greatest thanks must go to those community college administrators and faculty members who were kind enough to give of themselves so that we might both give and gain because of that.

Michael Brick

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BEHAVIOR AND DECISION-MAKING IN COMPLEX ORGANIZATIONS

William D. Guth

In my studies of complex organizations, I have discovered that behavior generally can be classified into one of three conceptual models -- the Rational Strategy model, the Organizational Politics model, and the Organizational Structure and Processes model. So many business managers fail, it seems to me, because of their implicit commitment to only one or two of these three conceptual approaches. In fact, ineffective managerial behavior often can be identified by the sole model to which the manager commits himself. Indeed, almost one hundred percent of the management failures I have seen are due to the lack of conceptual perspective on the part of the key executives.

It is my contention that, to be fully effective, the manager must think of his organizational responsibilities in all three conceptual ways and must design and integrate his action programs in ways which are consistent with all three conceptual perspectives. To illustrate my point, I now present some case studies.

A Rational Approach

In the first case, a man assumed the presidency of a fairly large company which dealt primarily in farm equipment and which had been on the verge of bankruptcy for years. A larger company had taken control of this company and had brought him in. The man's name was James Thomas, a professor from a prestigious eastern graduate school of business who had taught a course in corporate strategy. Thomas knew of the company's poor history and automatically realized that substantial changes had to be made so that the company could grow. To do this, he applied the principles he had been teaching for many years to the particular situation of his company.

First, he conducted a thorough analysis of the organization and discovered that seventy percent of his company's business was in farm equipment and thirty percent in industrial equipment. The growth rate of the company's products was good in the industrial market but poor in the farm one. Then, based on his analysis, he planned a new strategy -- to reverse the company's present resource commitment, changing the emphasis to seventy percent in industrial products and reducing farm equipment to thirty percent. He realized, of course, that the reversal would have vast implications. Among other things, it meant closing certain sales offices and reducing investments in farm equipment so as to free money for industrial equipment.

To explain and implement this strategy, Thomas developed a very well thought out proposal and sent it to the executives and Board of Directors of the company. Quite honestly, Thomas thought that there would be an immediate reaction of approval for his ideas, but nothing happened. There was no reaction from anyone. After a few days, Thomas called in each of the fifteen executives involved to discuss his plan. Only one of the fifteen approved his suggestions. The standard objection, he discovered, was that the company had been in the farm equipment business for many years and had a good reputation, and there was no need for change. Each management group (e.g., marketing, research, etc.) said that if the other departments would only do something differently and more effectively, they then would be more successful in the farm equipment business.

Thomas thought that perhaps his written presentation and his conversations with the executives were not full enough for the executives to come to the same conclusion he had. Therefore, Thomas proceeded to give an oral presentation on his plan. This did not succeed, either, and his plan was never accepted. Moreover, because of this incident, Thomas' power in the company was never established. He left after eighteen or nineteen months because he felt uncomfortable in his position.

Thomas' ideas should have worked. They were well thought-out, well presented, and, quite frankly, should have been implemented ten years previously. Yet his ideas were not accepted, and Thomas as a manager was a failure.

Now, the basic question is, "What implicit views of how an organization works would Thomas have had to have in order to take the actions he did?" I think that from the previous description, it can be seen that Thomas saw himself as an authority figure brought in to institute change. Moreover, I think it can be seen that Thomas felt that if people knew the explanations for things, they would implement them. Thus, after his written report had failed to elicit action, he did not change his approach, but rather intensified it -- bombarding his subordinates with an oral presentation.

In essence, Thomas' plans probably were rejected because people were afraid that if the plans were implemented their jobs would be in danger. After all, farm equipment represented seventy percent of the business. If the reversal occurred, a majority of people would find themselves in the less important part of the company with greatly diminished decision-making power. Yet, in the face of all this, Thomas must have believed that all he had to do was rationally deal with the problem from the perspective of the over-all company.

Thomas, then, was discounting many factors concerning behavior in

complex organizations -- most importantly, self-interest on the part of his staff. He did not really stop to think that there are numerous interests which are inconsistent with the rationally conceived overall interests of the organization. And no one brought this to his attention, mainly because the business culture in our country is based on the concept that the organizational interest -- not personal interest -- is of primary importance. Since this theory makes it impossible for someone to object to a program simply because it is not in his best personal interest, what one has to do is invent arguments which mask personal interests with concern for the organizational interests. And these masking arguments, by the way, can turn out to be some of the damnedest you ever heard!

Case 2: Crisis Management

In our next case, a man named Robert Pitcher was appointed president of a company which, as in the situation just discussed, was also in a crisis situation. But in this case, the situation was a more dramatic one, for the firm's survival was threatened.

Pitcher was a tough-minded person who had been around for a long time. When he first came to the company, he studied the situation for a few weeks. After that time, he called in his management group and made a presentation that was similar to the one made by Thomas in the case above. Pitcher recommended that the company eliminate some product lines which were not making money and concentrate on those which were. Moreover, he told his management staff that they had to accomplish certain tasks according to a schedule he set up. For example, in no uncertain terms he ordered the comptroller of the company to drastically and immediately reduce the size of his staff. During this rather dramatic meeting, the treasurer of the company arose and suggested that those present take a vote on the general desirability of Pitcher's program. Pitcher fired the treasurer on the spot for taking such action and called the meeting to completion. (By the way, Pitcher gave the treasurer a week's severance pay although he did not think the treasurer deserved it.)

The treasurer was a very popular man who had been with the company for many years. During that time he had accumulated much political power and had come to assume that he would be the next president. This situation was reflected in the events of the following day. To show their support for the fired treasurer, the remainder of the management group came to Pitcher's office the next morning to protest the action he had taken. They threatened to leave the company as a group if he did not reverse his decision.

In response, Pitcher told the group that he would not rescind his

decision -- whether they left or not. Pitcher, who expected that a management rebellion might take place, believed that if he did not strenuously stand up to the threat, he would never have much power in his organization. Moreover, he figured that he could not run the company as it was being run anyway, so he decided that he really had no option but to follow through on his actions. With Pitcher's admonition in mind, the group left to discuss the matter. A few hours later, a representative returned to say that the group understood the action he had taken, that the company indeed was in a crisis, and that they would remain to help him. However, the representative made it clear that the group would remain only until the firm was out of its crisis. Everyone wanted to make it perfectly clear that they were in total disagreement with him, and his management tactics.

About a year and a half later, the company's situation had turned around and the crisis was over. It was at this point that Pitcher decided to leave. He, quite rightly, felt that his staff hated him and would not work for him under his authoritarian structure now that the crisis was over. He decided that he simply was not very good at being a nice "participative" type of manager.

The reason for submitting the preceding case is to show that a person can confront significant power bases if he is willing "to go the whole distance" -- to take the risk that he may lose and that, as a result, the company will lose some very important people.

My explanation of why Pitcher was successful is that he clearly was working in a crisis situation and a person can do things in a crisis situation that would not be tolerated under normal circumstances. For example, in the case in question, the managers were constantly testing their power bases. Throughout the crisis, the members of the group did not want to give up their jobs; yet, they felt that they had to confront Pitcher to see if his stand was really strong -- or if he would back down. In this case, the challengers were fortunate. Because of the crisis situation, they had a perfect rationale for remaining with the company -- they never had to admit that they didn't have enough courage to follow through with their threats.

From the two case studies presented above, it can be inferred that while a manager does not necessarily have to elicit participation in the decision-making process to be effective, he still must consider the personal interest of each member of his team. But this takes time. It is impossible to achieve a unified organizational perspective quickly since each member of the team will be biased in his own perspective. Thus, in the first case, the seventy percent/thirty

percent reversal could not be accomplished within two years -- but perhaps in fifteen. In a true participatory process, one might not even express the ultimate goal. One might say, "Let's start to move slowly in changing these commitments around in order to maximize the point of view of the over-all organization."

I do not mean to say that there is any easy solution to these problems; they are tough to deal with because of sub-unit and individual interests which may be inconsistent with the overall organizational interests. Even when there is participation in the determination of corporate strategy, for example, something less than an optimum solution from the point of view of the overall organization is often all that can be achieved. What one gets for accepting less than the optimum is a group of people who are committed to the strategy and earnestly try to implement it. And, even though he is not doing the most from the overall organizational point of view, he can rationally argue to himself that he is accomplishing something of value, making some progress, and being effective in gaining full cooperation from his employees.

Case 3: A Case of Self-Interest

Here is one more illustrative management situation -- but this one might be a little harder to explain than the other two. The division manager of the paper products division of a large company with a functional organization pattern became concerned about the performance of his division. His division was getting a six percent return on investment, which was significantly lower than the competing business organizations.

From a strategic view, this low return was due to the fact that the basic products of the company were in the mature phase of the product life cycle. According to this theory, every product goes through an identifiable cycle which starts at the take-off stage when the basic management concerns are about technical problems such as product design and about market delivery at a reasonable price. Once the product is on the market, the problem is to get people used to the idea that the product exists and might be useful to them.

Shortly after that, sales begin to take-off. At first they grow very rapidly, usually resulting in a very high profit time in the company's history if the company can hold a lead at this position. Since there is not much competition at this point, the demand exceeds the supply of the product and there is rapid growth as the market gets used to and accepts the idea.

However, there comes a point at which the growth potential of the

product slows down. It slows down considerably and levels due to saturation of demand. Therefore, there is just moderate growth, if any, at this phase. Also, much competition can be anticipated since, as the technology involved with the product gets diffused, more and more companies commit resources to it. They are attracted to the product by the possibility of high profits, but by entering into competition, the tendency is for supply often to be slightly in excess of demand. This often leads to intensive market share competition among organizations trying to achieve growth. Each organization may try to gain an increase in its share of the market by creating new product features or lowering its prices. Look at refrigerators as an example of a classic case of a product in this phase -- just push a little button and ice cubes come out of the front of the refrigerator, the doors swing open, etc. The basic price of the refrigerator has remained the same for about ten years, but all of the new features have cut into the average profit margin; thus there are fairly low returns on this product, on the average.

But getting back to the situation at the paper company, the division manager felt that his products were basically undifferentiatable from other companies' paper products. Moreover, he thought that sales could not be significantly increased with their present line of paper products without cutting seriously into profits.

Now, this manager had been in a seminar of mine and he called me to work with him. So I met with the manager and with the group of key people who reported to him. After we went through my analytical model on strategy formulation systematically applied to this company, we arrived at a strategic solution to his problem. The solution was to develop a more highly differentiated line of products -- moving into speciality paper products rather than staying with standard undifferentiated products. We reasoned that this was the best thing we could do, given the resource capability of the firm, to provide some real opportunity for growth. The research and development department consisted of only two engineers who previously had been focusing upon process types of problems (helping to keep manufacturing processes up to date.) Since neither one of these men was particularly good at developing new products, three new engineers had to be hired to implement our plan. We focused their efforts exclusively on new product development and thought that we were home free.

At the end of the first year in a discussion with the division manager about the new products, I found that none had come out as yet. Why was this so? The division manager claimed that there were many new projects underway and really two more engineers were needed to handle the work demands. But at the end of the following year, there were still no new products. At this point, I must explain one very important feature of this case. In the course of the new product de-

velopment activity, the engineers had to go to the production department to request the use of some of the department's big machines to test the cost of the new products in an actual production line. Apparently in two years the engineers succeeded in getting only eighteen hours of machine time. How does one account for this? After all, all the men involved had agreed to the new plan when it was first introduced. Why would the production department be reluctant to give the research and development section machine time? The answer to this question is really quite basic.

Performance at each of the plants was measured on a return of investment basis. Consequently, the production head figured that if he gave up machine time to the research and development department, it would come out of his production time. This meant that the revenue generation of his operation would go down and that he would look worse on the measures of performance than he had before he had given machine time to research and development. In addition, there was a standard routine to the manufacturing process that nobody wanted to upset. Obviously, with such a system, the production man would get nothing out of giving his machine time to the research and development department. Clearly, we needed to change the measure of performance, for we knew that without changing the system by which a person's work was evaluated, there was little chance of new products being developed.

From this case study, I think it can be seen that although all key people may be involved in the decision-making process -- and even if they agree in advance to a decision -- an organization can still remain stationary if certain critical organizational elements are not taken into consideration. Indeed, in this case there is no doubt that the modification of the measures of performance of organizational sub-units had to take place before the new organizational strategy could effectively be implemented.

Case 4: A Matter of Influence

Very briefly, I would like to give you one last case focusing on how not to do things. This time, the case is taken from an academic environment and is about a dean of a business school of a major university. The dean in question was brought in from business at the age of sixty-one. He had previously served as a vice-president of finance for a large oil company. This man clearly did not know much about the academic environment and certainly did not know what strategic issues he might be confronted with in a graduate school of business. For example, he did not know of the arguments over the commitment of resources in relation to the development of an institutional concept that would attract a certain type of student body and that would re-

late in certain ways to both the academic and business communities. He just walked into the situation and was sort of aware that he did not understand it very well.

The dean was worried by this, but the search committee had assured him that all was well. But as it so happened, most of the members of the search committee had bridled under the last dean who had had a clear concept of what direction he wanted to go in, which deemphasized the development of resources in the area in which these members worked. Indeed, the search committee wanted a new dean who didn't know much about the situation because they figured that he would not be able to be as directive as the former dean had been.

To deal with his basic ignorance of the institution, the new dean decided to listen to some faculty members to see if he could figure out what was going on. He did not do this very systematically, but rather talked to those who called on him and every once in a while when he heard a person's name mentioned in a favorable light he would contact him. Through this process, he missed a number of faculty members. The people who came to see him had particular reasons for doing so -- they wanted a chance to sway him in a certain direction. After the dean consulted these people, he came to the conclusion that one man was mentioned more often than any other. Because of this, he felt that this person must have much influence, so he proceeded to call him in and asked him what he thought the strategy of the school should be and what future direction it should take. The man, whose background was in economics, had a "loose" constituency of over sixty percent of the faculty -- all of whom had their doctorates in economics. The dean decided to follow this man's strategy for the school. There were five other groups in the school, but the dean succeeded in making most of his decisions in favor of the first group to the exclusion of the others. He thus, quite definitely, alienated the other groups. Due to the antagonism raised by this alienation, the dean was uncomfortable in his position and retired before the mandatory age of sixty-five.

How would you explain this man's failure as a leader? I feel that he should have developed his own institutional strategy based upon his own systematic analysis of the resource base of the organization and the environmental opportunities to which this base might most productively be applied. So while I think that, in the first case, James Thomas failed because he did not pay sufficient attention to the political aspect of institutional life, the dean failed because he was over-committed to the political aspect and not enough to the rational, analytical one.

THREE MODELS OF ORGANIZATIONAL BEHAVIOR

Keeping these case studies in mind, I would now like to discuss fully each of the conceptual models of organizational behavior I referred to in the opening of my presentation.

Model 1: Rational Strategy

Model 1, the Rational Strategy model, is implicit in most management literature and in most of our talk at the formal level about behavior and management in business organizations. While it might sound extremely simple-minded and certainly no one would seriously commit himself to it, the fact is that most of us predicate a very large portion of what we do in organizations on the Rational Strategy model.

By briefly reviewing this Model and highlighting some of the features of it, we can see that James Thomas behaved in a way that can be explained by this model. In a sense, he was saying that an organization is a single actor which is a rational, unitary decision-maker. He also implicitly believed that there was such a thing as the problem -- the overall performance of the organization. Thus, what was needed in his situation was some action that would cope with that single problem -- a single strategy to cope with that single problem. Also implicit in this approach is the idea of static selection. This principle states that once a person goes through his analysis and determines his strategy, he should adopt that strategy and all sub-activities of the organization will then automatically relate to it. For example, it is assumed that once a strategy is adopted, everybody will figure out for themselves what sort of behavior they should adopt in order to implement that strategy.

In the rational model, action is seen as rational choice. A person looks at the goals and objectives of his organization, determines what alternative strategies might be employed, and figures the consequences of each. Then, all one has to do is choose among those consequences in ways that will maximize the values of the institution as a whole. There are, of course, always cases where the decisions do not fit the objectives. Most analysts offer a certain kind of explanation to deal with this divergence of behavior. They claim that what is stated as the objective of the organization may in fact be different from the real values of the organization. Thus, to find the real values of the organization, one has to work backwards. By looking at what was chosen, one can assume that the people involved in the situation were not fully committed to the organizational objectives as they were previously defined and can infer what their real values were by looking at the particular strategy that they chose.

Some of the other propositions related to the rational strategy model are that alternatives should be generated until one or more promise to yield at least the minimum level of desired goals and objectives. The model also says that the performance of an organization is a function of the amount of real market opportunity, and adequacy of the resources in relation to the competition. In effect, if this is what really determines organizational performance, then it is important to work backwards -- thinking very hard about how much real opportunity exists for the particular things one wants to do, continually assessing the resource capability of the organization and making decisions which maximize the desired performance.

MODEL 1: RATIONAL STRATEGY

Key Concepts (Implicit usually):

1. Single Actor • Organization conceived as a rational, unitary decision-maker - one set of goals, one set of perceived alternatives, single estimate of consequences of each alternative.

2. The Problem • Action chosen to cope with single strategy problem - opportunity and threat.

3. Static Selection • Strategy chosen - all activities relate to selection.

4. Action as Rational Choice •

Goals and Objectives)	Analysis involves
Alternatives)	INFERENCE
Consequences)	of goals from actions
Choice as Value-Maximization)	

Inference Pattern • Organization's objectives can best be discovered by calculating what values are maximized by certain actions.

Propositions •

1. Alternatives will be generated until one or more promise to yield desired goals and objectives (search theory)

2. Performance (in terms of goals and objectives) a function of:

   a. amount of real market opportunity

   b. adequacy of resources in relation to competition

Model 2: Organization Strategy

Now I would like to look at Model 2 which also explains a significant portion of what happens in an organization. I call this the Organizational Politics model. This model suggests that instead of seeing the organization implicitly as a single actor -- everybody interested in maximizing whatever has to be maximized for the benefit of the organization as a whole -- one should tend to look at the organization as a series of players in jobs. Indeed, there is a game going on in which there are many interactions and inter-relationships. For example, each department or division head has a particular set of perspectives on the organization. He has his own bargaining position and his own power position, and he bargains and trades to maximize the particular and unique perspectives of his organizational unit. Thus, in light of this model, one can say that if there is a person with a certain kind of background in a particular kind of job, it is almost always possible to predict what kind of perspective he is going to have on the problems which he faces -- determined by his interests and his stakes in the game that is being played within the overall organization.

This model also suggests that in dealing with issues, there are circuits that occur within established and fairly stable patterns. One can identify and predict who sees whom, what kind of information flows, which players get themselves involved in what kinds of issues. From the perspective of this model, action is viewed as politics. Each player pulls and hauls, with as much power as is available to him, for outcomes that will advance his conception of overall organization, group and individual interests.

In the Organizational Politics Model, instead of having a static decision-making process where one studies the problem and figures out the strategy and then everything follows from that, one has a stream of outcomes resulting from the pulling and hauling, and the very complex inter-relationships among political players in their jobs. One can deduce from this conceptual model that the action that actually occurs is different from the intention of any single player. Nobody is going to fully maximize his interest because he is automatically in relation with others who share power with him and have different stakes. One can also anticipate that there are going to be different perceptions of what the issues are and different perceptions of the organization's problems, essentially resulting from the idea that where you stand on an issue depends on where you sit in the organization.

Another interesting feature of this approach is that most problems are framed, alternatives are specified, and proposals are pushed by

"indians" rather than the "chiefs." With the more rational models, one tends to conceiv that all significant decision-making and all behavior of any consequence really takes place at the top and that the lower people are merely implementing these decisions. In the Organization Politics model, the real activity of an organization takes place at the lower levels. The model postulates that people at these levels have more detailed knowledge of what the concrete aspects of the problems are and that they make their own proposals for solution and tend to push them up the line.

Thus, the person at the higher point does not really know much about the details of the concrete problems -- he is really looking at it from only a very broad and general perspective. His first reaction is that he must hold off on any action until he makes certain that from his own standpoint it is a good thing to do. He also feels that he cannot look at the proposal simply in itself, but must look at it in a broader field to see if he can get support for it from others in the organization. Also, he must convince the people who are higher than he -- starting with his boss -- that what should be done is right. If the person at the lower level who is well aware of the problem only considers it from an economical, technical standpoint, his solution will not readily get implemented because of the political maneuverings higher up. Hence, he must give his boss arguments that he will be able to take on up the ladder and get other people to agree to. He must give the higher-up confidence in the solution, because the man at the upper level really does not know what is happening at the lower level. Consequently, the man at the lower level must build his proposal in ways that will give the higher up the assurance he needs that it is a good proposal, and that it is politically supportable.

In order to gain commitment for the proposal, fuzziness in the proposal is often required so that people will be able to read into it what they have to in order to be willing to support it. But, for fully efficient implementation, the proposal has to be crystal clear. Thus, there is a built-in problem in all organizations -- proposals that get adopted tend to be very difficult to implement efficiently.

MODEL 2: ORGANIZATIONAL POLITICS

Key Concepts (Implicit usually):

1. Players in Jobs . Department and division heads. Advantages and disadvantages of each player stems from his position or job. Men, not rational machines.

2. Parochial Priorities and Perceptions . Department head has to motivate his people; thus, organizational position helps determine priorities and perceptions.

3. Power and Stakes . Overlapping interests constitute stakes. Power - function of bargaining advantages, skill at using advantages; perception of power of others.

4. The Problem and the Problems . Problem players respond to often quite different from the Problem.

5. Circuits . Action takes place within fairly stable established pattern for dealing with issues.

6. Action as Politics . Each player pulls and hauls with the power at his discretion for outcomes that will advance his conception of organization, group and individual interests.

Streams of Outcomes . Strategic change rarely results from steady state decision - rather, the result of a stream of actions resulting from continuation of game.

Inference Pattern . Action the outcome of bargaining between individuals and groups within the organization.

Propositions .

1. Action different than intention of any one player

2. Where you stand depends on where you sit

3. Most problems are framed, alternatives specified, and proposals pushed by Indians rather than Chiefs. Problem looking down is:

   a. how do I preserve options until situation clarified

   b. sideways - how do I get others committed

   c. upwards - how do I give the boss confidence in what is done

4. To gain commitment - fuzziness in proposals required

5. For implementation - clarity required

Model 3: Organizational Structure and Processes

Model 3 is called the Organizational Structure and Processes Model. This one comes to mind in the case of the division manager of the paper company who looked at the structure and processes and found that they were negatively related to accomplishing what he wanted to accomplish. A key concept of this model is multiple actors. According to this model the organization is not a single decision-maker, but instead has many actors each representing an organizational unit and only very loosely coordinated with the others in the organization. Factored problems and power bases, which are like the ones in the political model, are also part of this model; they stem from the creation of specialized units that each focus attention on only part of the total organizational activities.

From the creation of specialized units, one gets the benefit of higher efficiency, but at the price of lack of full coordination among the specialized units. And once again, there is the issue of parochial priorities and perceptions. One is always worried about centralized coordination and control, but only in the broadest, biggest issues can one hope to have the degree of rational comprehension of inner relationships that is necessary to effectively influence the coordination of major new programs. Also, in trying to exercise central coordination and control, the only thing a manager has to work with is his power to vary rewards and punishments to get some unit members with their own parochial priorities and perceptions to do things that contribute to the overall organizational output.

Now, using the rational model, one tends to think of everybody trying to maximize everything; either the overall organizational "good" or sub-units' "goods." As a matter of fact, according to the organization structure and processes model, most members of organizations shoot for acceptable levels of performance rather than the maximum one. They say to themselves, "What do I have to do in order to look good?" and then only do as much as will satisfy this criterion. Also, using the rational model, one thinks of all organizational members dealing with the whole problem, but in the organization structure and processes conception, we see that problems are dealt with on a piecemeal, sequential basis. The problems which arise in one part of an organization are dealt with as best they can be in some of their aspects and then they are shot around to other units in the organization where they are also dealt with on a piecemeal, sequential basis.

In this sort of conception, standard operating procedures determine most of the actual behavior; members of the organization have learned over a period of time how to function and survive by adopting standard ways of doing things. Indeed, except in crisis, organiza-

tions seem to have limited flexibility, and they change only incrementally. Consequently, organizations create specific problem-oriented search for new solutions rather than inspiring searches in broader, more significant areas. In general, only one solution is looked for, and alternatives to this one solution are rarely considered. This search for a single solution is simple-minded, for it ends as soon as any acceptable solution is found. The whole effort is designed to avoid discomfort rather than to maximize anything.

Let us look at yet another aspect of the Organizational Structure and Processes model. In the Rational Model, very sophisticated measures of expected returns on different decisions and courses of action are a key element. The concept of expected returns says that projected future streams of earnings are judged in regard to the projected future value of money and by the amount of uncertainty one has about what is actually going to happen in the future. The rational decision-maker is supposed to take this into account before he acts. Contrast the Organizational Structure and Processes Model which claims that people do not do this. Rather, they avoid uncertainty rather than measure it and relate it to expected returns, and, thus, tend to make decisions to do the most certain thing they can find. Thus they tend to do basically what has previously been done. The best prediction, then, of what an organization will do next year is what it is doing this year, with very minor change.

MODEL 3: ORGANIZATIONAL STRUCTURE & PROCESSES

Key Concepts (Implicit usually):

1. Multiple Actors . A number of organizational units act -- only loosely coordinated.

2. Factored Problems and Power . Creation of specialized units yields some autonomy and specialized action -- but price is less than full integration.

3. Parochial Priorities and Perceptions

4. Central Coordination and Control . Rational capability needed to perceive and resolve all interdependencies is high (key issues only). Control based on power to vary rewards and punishments.

5. Action as Organizational Output . Characterized by:

1. Goals as Acceptable Level Contraints - bargaining between interrelated units yields imperatives to avoid disastrous consequences

2. Sequential Attention to Goals - problems dealt with by units closest to them within constraints

3. Standard Operating Procedures - used to cope with problems - don't change in midstream

4. Problem-directed Search - simple-minded, discomfort avoidance

5. Avoidance of Uncertainty - do not measure uncertainty, avoid it

6. Learning and change occur slowly, except in crisis situations

Propositions .

1. Organizations do not respond in far-sighted, flexible adaptive ways to non-standard problems.

2. Organizations have limited flexibility and change only incrementally (except in crisis).

3. Organizations are blunt instruments - projects which require several units to work together smoothly are not likely to succeed.

4. Projects which require major departures from routines are rarely accomplished as desired.

5. Leaders can expect distorted information from organizational units.

6. When an assigned piece of a plan goes against established unit goals - there will be resistance in implementing it.

In light of the above discussion, I would like to make some general propositions on behavior and decision-making that, perhaps, are generic to all organizations and the people who work in them.

1. Organizations do not respond in far-sighted, flexible ways to non-standard problems.

2. Organizations have limited flexibility and change only incrementally except in crisis.

3. Organizations are blunt instruments; projects which require that several units work together smoothly are not likely to succeed.

4. Projects which require major departures from routines are rarely accomplished as desired.

5. Leaders can inevitably expect distorted information from sub-unit managers and automatically should design counter-strategies to compensate for their distortions.

6. When an assigned piece of a plan goes against established sub-unit goals, there will be resistance to implementing it.

Final Case: A Success Story

I would now like to offer a final case study which tells about a man who succeeded in making a major and dramatic change in his organization. In my opinion, his success was due to the fact that he took into account all three models articulated above and integrated the various perspectives into a viable action plan for change.

The Singer Company in 1958 was almost exclusively a sewing machine business. From 1950-1957, the company's domestic market share dropped by 50% from 66% of the total market to 33%. Its market share in the rest of the world dropped from 40% to 33%. The key factor which determined this downturn in the market share position of the company was Japanese competition. In 1957, for example, a Japanese sewing machine sold for $39.95, which compared feature for feature with a Singer machine which sold for $139.95. Although the situation reflected serious deterioration in position, the management did not come up with a bold new strategy to reverse the performance trend. A possible explanation for lack of bold action was that the average age of the top executive group was sixty-two. As another possible explanation, the company's ratio of current assets to current liabilities was 8:1 which indicated no immedate financial pressure at all. The company was obviously not going to go into bankruptcy. The company had no long-term debt. In addition, it had market securities which could be sold on a one day's basis amounting to over $20 million.

Perhaps the combination of these two factors restricted the kind of creative effort which would have provided a new strategy.

The new man selected for the presidency had an L.L.D. from Columbia and had spent the first ten years of his career in a company which handles Singer's legal problems. He had been actually in the legal department of Singer for six years when he was chosen president. At that time he was 42 years old. When he became president, this man first conducted an analysis of Singer's slumping business and arrived at various conclusions. One was that it was not possible for this company to grow in the sewing machine business. The sewing machine business in the developed countries was a mature market, marked mainly by replacement demand. With his firm's resource capability, he realized he could not even come close to competing with the Japanese on a price basis. Therefore, there was really not much potential for growth in this market. Thus, the new president decided that the company should get into different markets in addition to sewing machines. He worked out a diversification strategy, outlining some broad guidelines of the markets he wanted to be in and how he was going to move resources from sewing machines into those areas.

At the same time that he developed his broad strategy, the new president was looking closely at the political situation in which he was working. Singer at that time was organized on a functional basis. That is, if a problem came up in marketing which had some inter-relationship with manufacturing and research, the only place where it could be formally coordinated was at the president's level. Obviously the president could not really handle all the problems and, as a result, it was nearly impossible for the company and its operations to understand what was really going on so as to make appropriate adaptations. In addition, the president had served on the Board of Directors before becoming president and had a concept of the mood and thinking of the members. He had evidence that they would not support his strategy of diversification.

Now, as I mentioned before, the average age of the board members was sixty-two, with five of the eight members being well over sixty-five. The first official action the new president took during his initial year of office was to propose a mandatory retirement age of sixty-five. He was smart enough to know that the board of directors would reject this proposal because that would mean that they would involuntarily have to give up their jobs. Therefore, he made an addition to his proposal which stated that his measures should not affect those who were presently employed. Even though this did not remove the board members, the new president felt that just the discussion of retirement at sixty-five would give these people cause to think about their roles in the firm. He felt that they would become more and more uncomfortable and quit by themselves. He was right, for by the second year of his

tenure, five of the board members left. The president filled these positions with people who adhered to his new corporate strategy. When other vacancies occurred on the board within the year, he also filled them with like-minded men. After these retirements and replacements, it took one and a half years before Singer was able to make its first strategic move. The company started to acquire another company and began pulling some of its resources out of sewing machines. Thus, it can be seen that it took two and a half years for the new president to both set up a political climate and then get started on his new strategy.

The president's second move after embarking upon his diversification program was to change the organizations's structure. He moved the company from a functional pattern to a geographically centered pattern. He had vice-presidents for Europe, Latin America, etc. In turn, each vice-president had country managers reporting to them. Most country managers had both sales and production units reporting to them. He also instituted new measures of performance. Each one of these organizational units was measured in terms of performance on return on investment and return on assets all the way down to the sales unit and production unit level in the individual country.

In addition, he changed the whole information system around. He accomplished this pattern of organization by 1964. This allowed him to do several things. First of all, it put all organizational levels and units on the same measure of performance and thus forced the individual units to focus their attention on the same performance measures that were appropriate for the overall company. Also, he worked hard to force resolution of conflicts on the lower levels so that he would not have to adjudicate them at his presidential level since he readily admitted that he did not know much of what was going on at these lower levels. In this way, Singer's organizational problems were greatly reduced.

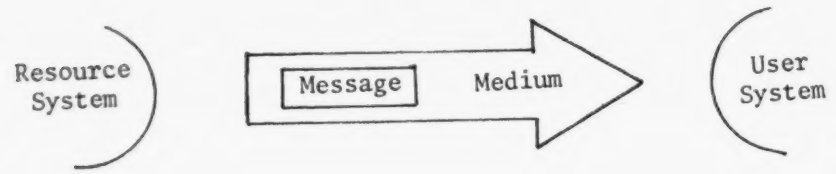
In summary, I would like to say that at present, the Singer Company has sales of 2.1 billion dollars. Before the new president took office, sales were 500 million. It seems clear to me that this growth factor of 4.2 is almost entirely due to the management of the new president. For our purposes, it is extremely important to note that, in my opinion, his behavior was consistent with all three models of behavior in complex organizations which I submitted in this paper. Indeed, this successful manager -- like all successful managers -- planned and implemented his action programs with a keen awareness of the rational, political, and structural aspects of organizational life.

THE MANAGEMENT OF CHANGE THROUGH DISSEMINATION AND UTILIZATION OF KNOWLEDGE

Ronald G. Havelock

A typical and popular starting point for consideration of knowledge utilization is the single act of communication of information from one person to another. This communication process can be represented by a paradigm which posits a sender, a receiver, a message, and a medium. The paradigm can be quickly broadened by designating the sender as the resource system and the receiver as the user system as indicated in Figure 1.

Figure 1



This simple model serves well as an initial guide to literature searches on the transfer of information, but as a model of the complete communication process, it is severely lacking. In reviewing the literature, it was found that the major theoretical and empirical studies of knowledge dissemination and utilization seem to be grouped into three general categories corresponding to the principal models, methods, and orientations employed. These three categories, as described in the following pages, are: the Research, Development and Diffusion perspective; the Social Interaction perspective; and the Problem Solver perspective.

THE RESEARCH, DEVELOPMENT, AND DIFFUSION PERSPECTIVE (RD&D)

The Research, Development, and Diffusion perspective posits a user population which can be reached effectively and influenced through a process of information dissemination provided, however, that this dissemination is preceded by extensive and complex research and development activities which usually include features such as basic research, applied research, development, production, and packaging. There are of course, many variations on this pattern, with five positive features which they all seem to have in common.

First, the RD&D model suggests that there should be a rational sequence of activities which moves from research to development to packaging before dissemination can take place. Second, this model assumes that there has to be planning on a really massive scale. Third, there has to be a division of labor and a separation of roles and functions. Fourth, it requires a scientific evaluation at each stage of development -- resulting in a passive consumer who will accept the innovation only when it is delivered on the right channel, in the right way, and at the right time. Fifth, this perspective accepts the fact of high initial development cost prior to any dissemination activity, because it foresees an even higher gain in the long run.

Prototypes for the RD&D model are presumed to exist in industry, defense, aerospace, and perhaps most especially, agriculture. The model seems to be a particularly popular and appropriate one for dealing with dissemination and utilization issues at the macrosystemic and policy levels because it sub-divides the knowledge flow system neatly into the different functional roles which exist within the various sub-cultures (e.g., the research community, the product organizations, the practitioners and consumers). It does appear to supply much of the rationale for current policy planning in the U.S. Office of Education.

In criticism, the RD&D model can be said to be over-rational, over-idealized, excessively research oriented, and inadequately user oriented.

THE SOCIAL INTERACTION PERSPECTIVE (S-I)

The Social Interaction perspective has its roots in anthropological studies of the diffusion of cultural traits. S-I researchers assume the existence of a diffusable innovation as a precondition for any analysis of the communication process. Hence, they are relatively indifferent to the value of the innovation itself or to the type of scientific and technical know-how that might have gone into its original development and manufacture.

The primary concern of the S-I theorists is the empirical measurement of flow through a social system. They study the pattern of the flow and the effects of social structure and social relationships and groupings on the success or failure of the innovation.

Six major points can be derived from the S-I theory: 1) the importance of the social relations network, 2) the user's position in that network, 3) the significance of informal personal relationships and contacts, 4) the importance of reference group identifications,

5) the essential irrelevance of the size of the adopting unit, 6) the significance of different types of influence strategies in the adoption process.

Historically, research on social diffusion processes (the S-I school) began with anthropology, and was strongly influenced by social psychology. But it took its most virile form in the hands of rigorous and empirically-minded rural sociologists beginning with the classic study by Ran and Gross of the diffusion of corn into a hybrid variety. Over 1000 empirical research studies have come along since 1945 which bolster and extend this original work.

There are, nevertheless, notable gaps in this literature, some predictable, but some surprising. As mentioned previously, invention, research, and development activities have not been included in S-I studies. The same applies to the translation, transformation, and adaptation of innovations which occurs as they diffuse through the system. In addition, the processes of maladoption, inadequate or inappropriate adoption, and rejection have been given less than adequate coverage, and finally, the psychological processes of the potential user-adopter are rather loosely and sketchily understood.

With all of these shortcomings, however, the S-I perspective remains very strong in terms of empirical research support, and the six major points which have been derived from it represent highly relevant considerations for any diffusion and utilization activity.

THE PROBLEM SOLVER PERSPECTIVE (P-S)

The Problem-Solver perspective rests on the primary assumption that knowledge utilization is a part, and only a part, of a problem-solving process inside the user which begins with a need and ends with the satisfaction of that need.

Proponents of this school of thought model the process as stages of a cycle typically including the steps of:

1. need sensing and articulation;
2. diagnosis and formulation of the need as a problem to be solved;
3. identification and search for resources relevant to the problem;
4. retrieval of potentially feasible solutions and solution-pertinent ideas;
5. translation of this retrieval knowledge into specific solutions or solution prototypes;

6. behavioral try-out, or application of the solution, including evaluation of its effectiveness in terms of need reduction. Presumably, if the solution does not satisfy the need, the cycle begins again, and continues until, through a series of trials and adaptation efforts, the problem is solved on an adequate and lasting basis.

The problem-solver perspective is closely associated with the human relations tradition of planned change and it represents basically a psychological and user-oriented approach to problems of diffusion and utilization. In contrast to the more sociological S-I tradition, however, there has been very little sound empirical research based on a P-S approach.

Five very solid points are stressed by P-S theorists:

1. the user's world is the only sensible place from which to begin to consider utilization;

2. knowledge utilization must include a diagnostic phase where need is considered and translated into a problem statement;

3. the role of the outsider is primarily to serve as catalyst, collaborator, or consultant on how to plan change and bring about this solution;

4. the internal knowledge retrieved and the marshalling of internal resources should be given at least equal emphasis with external retrieval;

5. self initiation by the user creates the best motivational climate for lasting change.

These five strong points of the P-S perspective make it a virulent contender as the model of utilization, but it is not without its own shortcomings. The P-S perspective puts excessive strain on the user, it minimizes the role of outside resources, and, because emphasis is placed on each individual user, it does not provide an effective model for mass diffusion and utilization of knowledge.

THE CONCEPT OF LINKAGE -- THE UNIFYING PERSPECTIVE

Each of the three diffusion and utilization perspectives discussed up to this point provides us with valuable insights and useful guideposts for developing a comprehensive view of the whole, but each leaves much to be desired when viewed separately. Clearly, there is

a need to bring these three viewpoints together in a single perspective that includes the strongest features of each. We at the Institute are not sure that we are yet ready and able to bring about this synthesis, but at this point I will put forth the concept of linkage as a possible unifying and integrating idea.

The concept of linkage starts with a focus on the user as a problem-solver. We must first consider the internal problem-solving cycle within the user. There is an initial felt need which leads into a diagnosis and problem statement and works through search and retrieval phases to a solution, and the application of that solution. But as we see in turning to Figure 2 (page 30), the linkage model stresses that the user must be meaningfully related to outside resources.

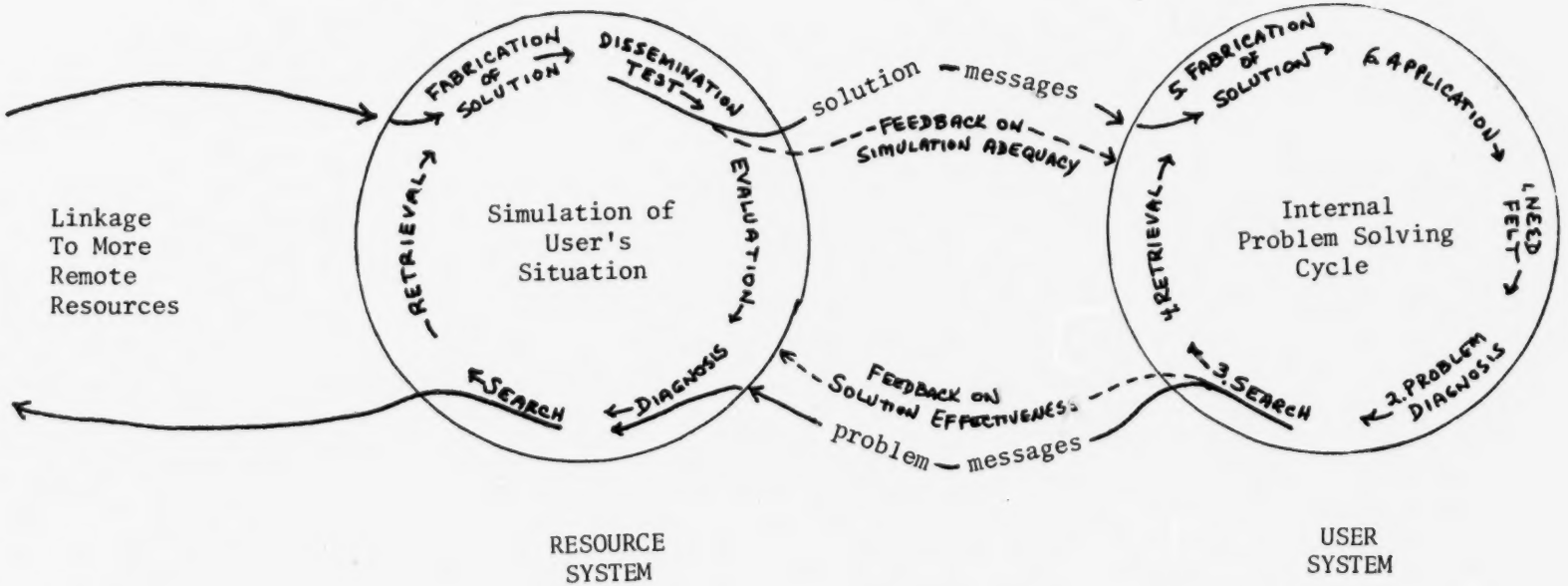
The user must make contact with the outside resource system and interact with it so that he will get back something relevant to help him with the solution process. The user must enter into a reciprocal relationship with the resource system; this means that something must be going on inside the resource system that corresponds to what is happening in the user. In effect, resource systems and resource persons must simulate or recapitulate the need-reduction cycle of the user. They should be able to simulate the user's needs, the search activity to meet the needs, and the solution-application procedure that the user must go through before his needs are met. It is only in this way that the resource persons can come to have a meaningful exchange with the user.

The development of reciprocating relationships goes beyond the point of improving individual problem-solving processes toward the creation of a stable and long-lasting social influence network. This collaboration will not only make a solution more effective, but, equally important, it will build a more effective relationship -- a relationship of trust and a perception by the user that the resource is truly concerned, will listen and will have a quantity of useful information to pass on. The reciprocal and collaborative nature of this relationship further serves to legitimize the roles of user and resource persons and to build a channel of communication between them.

Linkage is not simply a two-person interaction process, however; the resource person, in turn, must have access to more remote and more expert resources than himself. In his efforts to help the user, the resource person must be able to draw on specialists, too. Therefore, he must have a way of communicating his need for knowledge to other resource persons and these, in turn, must have the capacity to recapitulate this same problem-solving cycle at least to a degree; only in this way will they be able to develop a functional relation-

Figure 2

THE LINKAGE PROCESS



ship with each other. Therefore, an effective diffusion and utilization process requires linkage to more and more remote resource persons, and ultimately these overlapping linkages form an extended series which has sometimes been described as a chain of knowledge utilization.

SEVEN FACTORS WHICH ACCOUNT FOR MOST DIFFUSION AND UTILIZATION PHENOMENA

Our analysis of diffusion and utilization began with a simple formula for communication. It was found that most research studies could be classified according to this formula. Having made this breakdown, we composed reviews which summarized each of these models. But when we were through, we found a remarkable consistency: certain themes seemed to recur, regardless of the area of focus and regardless of the level of analysis. These unifying themes can be fairly summarized under seven headings which we call the general factors in knowledge dissemination and utilization:

1. linkage
2. structure
3. openness
4. capacity
5. reward
6. proximity
7. synergy

1. Linkage

Earlier, linkage was suggested as a possible concept which could be used to bring together the three most prominent perspectives into a single model. It simply means interpersonal or intergroup connection, the extent to which mutual communicative relations exist among two or more parties. The more linkages there are and the stronger these linkages are, the more effective will be the day-to-day contact and exchange of information, hence the greater will be the mutual utilization of knowledge. Most importantly, the greater the number of overlapping linkages throughout the macrosystem of knowledge production and dissemination, the

more frequent and more effective will be the knowledge utilization by all.

Linkage has some meaning as applied to each component of the communication process.

The Resource System

In order to be effective as disseminators and helpers in the innovative process, resource systems need to develop reciprocal and collaborative relationships not only with a variety of potential users, but also with a large and diverse group of other resource systems. The resource system also needs to have successful internal linkage with its components and members.

The User

Similarly, users need to develop reciprocal and collaborative relationships with a variety of resource systems. There also has to be a considerable degree of linkage among individual members and sub-units within the social system itself. In particular, innovators need to be linked to opinion leaders and opinion leaders need to be linked to a large number and variety of followers who can pass the word to the most isolated corners of the community.

The Message

Linkage in the message means relevance to the user and to the user's need. However, message linkage can also mean internal linkage within the message or relatedness of one part of the message to another. Another meaning is relatedness to other messages that have been directed to the user in the past; the message which the user can mentally connect to past messages will stand a better chance of acceptance. Finally, it might be defined as "linkage to a basis in scientific knowledge." This type of linkage may not be of immediate significance to the user, but it probably will have long-term significance in the value and ultimate benefit to be derived from the innovation.

The Medium

Linkage is also a relevant concept to apply in considering the medium or strategy to be employed in a diffusion and utilization

effort. The medium should be "linked" to the sender and the receiver in the sense that it should be compatible with their experience and style. Certain media (e.g., personal contact, and informal group discussion) are very significant in developing initial linkage between sender and receiver, while other media (e.g., television and most forms of writing) presuppose effective sender-receiver linkage, or at least a receiver who is "cognitively tuned" to the message and the medium.

2. Structure

Effective dissemination and utilization of knowledge must take place within a coherent framework, a structure which designates a rational sequence of steps, compartmentalization and coordination, division of labor, and so forth. Successful utilization activities tend to be structured activities, and useful knowledge is structured knowledge. The extent to which structuring takes place in the sender and receiver and in the message seems to be an important correlate of successful dissemination and utilization.

The Resource System

The "Structure" factor is important for the resource system in at least three ways. First of all, to be effective, the resource system needs meaningful division of labor and coordination of effort; it should be organized into a system which functions as a whole. Secondly, the resource system should have a clear over-view of the client system; it should be able to understand the various sub-systems of the client system and how they are interrelated; a structured approach to viewing the client will help the resource system in diagnosis and in defining its own appropriate role vis-a-vis the client. Thirdly, the resource system should be able to plan diffusion and utilization activities in a structured sequence which will make sense in terms of one or another of the models discussed earlier. Almost invariably, the resource system will be successful as a helper or disseminator if it clearly plans and faithfully executes a coherent and logical strategy of helping or dissemination. This is particularly true for large scale innovation.

The need for a structured sequence of functions to support effective utilization was illustrated dramatically by Mackle and Christensen in their discovery of the non-utilization of Navy supported research on learning. They found that there was no systematic planning for utilization; therefore there were no developed mechanisms or structures for the necessary translation and integration of research findings for practical uses.

The User

The same structuring principle applies equally to the user himself. The user should be organized to receive just as the resource should be organized to send. If the user system is a complex organization, it may have specialized sub-systems which retrieve outside knowledge and adapt innovations for internal consumption.

Large or small, however, the user system must have an adequate internalized problem-solving strategy -- an orderly set of processes for need-sensing and expression, diagnosis, resource retrieval and evaluation. The user system will also be a more effective knowledge utilizer if it contains an integrated network of social relations: for example, a viable opinion leadership-followership structure and a set of internal linking roles such as the innovator (to import new ideas) and the defender (to protect against imports of dubious value, reliability, and safety.)

The Message

Usable knowledge might be defined as knowledge which is coherent in form and substance and, in that sense, structure. It is rationally organized for ready consumption, designed, tested, packaged, and labelled.

The Medium

Important as it is to have a structured message, it is even more important to have a structured program for getting the message across to the user. As Miles states: "...careful attention to the anticipation and management of change processes as an innovation proceeds is of considerable importance... Often much more attention is put on constructing the innovation itself than on planning and carrying out the strategy for gaining its adoption." Multi-media programs for diffusing innovations and/or solving problems have a high chance of success, particularly when they are used in combinations and sequences that are timed to correspond to stages in the user system's developing readiness and involvement.

3. Openness

Openness, the readiness to give and to receive new information, is fundamental to effective utilization. It is a prerequisite

to linkage and a necessary complement to structure. Closed systems and closed minds are, by definition, incapable of taking the important new messages from outside; if they cannot take in, then they cannot utilize knowledge for internal change. Openness is a vitally important quality of innovative knowledge utilizing systems.

The Resource System

For the resource system, openness means a willingness to help and a willingness to listen and to be influenced by user needs and aspirations. The "ivory tower" approach, for example, closes off valuable intellectual resources from the rest of society, creating a closed system that is indifferent to the public interest. Practitioner groups such as the legal and medical professions may also close themselves off when they establish high fees and evolve service standards which are subject only to internal surveillance and internal influence. Effective resource systems are open to influence and change both from the user and from other resource systems. It is also vital that practitioner resource systems renew their skills and their competence by continuously remaining open to the newest developments of science and technology.

The User

For the user, openness is not merely a passive receptivity to outside knowledge. Rather it implies an active faith that outside resources will be useful and, as a result, an active reaching out for new ideas, new products, and new ways of doing things. In addition, it involves a willingness to take risks and to make an effort to adapt innovations to one's own situation.

The user should also be open internally to himself, willing and able to make objective self-diagnosis, to own up to his own needs, and to be open to using his internal resources. Research studies have shown that the age of adopter is negatively correlated with innovativeness. In other words, youthfulness is related to effective diffusion and utilization of knowledge. The underlying psychological factor behind this statistic may indeed be the openness of "those who think young."

The Message

In at least a metaphorical sense, openness also has some meaning when applied to the message and the medium. Research on

message characteristics suggests that "adaptability" and "divisibility" are important qualities which aid diffusion and utilization. An innovation should be "open" in allowing potential users to try out and sample its effects prior to an all-out commitment to adopt. Openness may also be construed to mean "demonstrability," i.e., innovations should be open and accessible to inspection and evaluation by the user.

The Medium

Diffusion and innovation strategies should be "open" in the sense of being flexible. A plan for utilization should allow for alteration or adjustment to account for unforeseen circumstances and unanticipated user reactions. To a degree, there is a trade-off between openness and structure in a good strategy, but the two factors are not necessarily contradictory; the best structured strategy has built-in flexibility and open-endedness. The best medium is also one which allows open informal communication between senders and receivers.

4. Capacity

Capacity, or competence, ties together the highly intercorrelated variables of wealth, power, status, education, intelligence, and sophistication which are invariably good predictors of successful innovation and utilization. As much of the research on the S-I perspective suggests, those who already possess the most in the way of resources and capabilities are the most likely to be able to get even more. The rich have more opportunities to get richer because they have the "risk capital" both figuratively and literally.

The Resource System

Generally, the more power, prestige and capital possessed by the resource system, the more effective it will be as a resource and as a diffuser. If the resource system collectively possesses a high degree of intelligence, education, power, and wealth, it will then have the ability to summon and invest diverse resources; it will be able to plan and structure its activities on a grand scale over a long time span to produce "high performance products."

The User

Likewise for the user the ability to assemble and invest his own internal resources and to call upon outside (and sometimes very expensive) help is extremely important in successful innovation. Self-confidence -- a feeling that one has the capacity -- is also an important predictor of successful utilization. Other important ingredients of capacity include the amount of available time, energy, education, sophistication, and size of operation.

In research studies of the user, the various components of capacity are usually measured separately, but they do go together so consistently that they really form a "success syndrome." This is a factor which confounds the government policy makers who try to legislate programs to aid the poor, the underprivileged, and the underdeveloped, because willy-nilly the high capacity people are the ones who derive the most benefit; they are the ones who know how to identify, retrieve, and make effective use of the potential new resources that these programs represent. The sad fact is that capacity is a quality which is distributed very unfairly in nearly all societies, usually in inverse proportion to the need for it. For the policy-maker who wants to improve the society there is an awful dilemma here. Clearly the best return on diffusion and utilization investment is from a high capacity user system, but the low capacity user system is the one which needs help the most.

The Message

Innovations which represent a tremendous investment in research and development and in packaging are more likely to diffuse effectively, sometimes in spite of high cost to the user. The commercial jet aircraft, color television, and the Physical Science Study Committee (PSSC) curriculum are all examples of innovations which represented tremendous initial investment by very high capacity resource systems, and subsequent diffusion and utilization success in spite of a necessarily high purchase price.

The Medium

A high capacity medium in one sense is a medium which can convey a large quantity of information to a user in the shortest possible time; this is important for diffusion and utilization, but of equal importance is the capacity of the medium to store a

large amount of knowledge for the user and to store it in such a way that it is readily retrievable by the user when he needs it and in the form he needs it. Finally, a high capacity medium is one that has the power to influence the potential user, to monopolize his attention, to involve and to captivate. Obviously, no one medium possesses all these capacities simultaneously even though all are needed. Therefore, an optimum strategy should employ a range of media in sequence and in coordination to take advantage of the special capacities of each.

5. Reward

A fifth factor of diffusion and utilization is summed up by the word reward, or reinforcement. It is a fundamental psychological fact that rewarded behavior tends to be repeated, and this is as true in knowledge transfer transactions as it is in the Skinner Box. We do not clearly know what the optimum reinforcement schedules are, and we may not always be quite sure what the equivalent of food pellets is for human consumers, but we do know that the reward has to be there. The sender won't send if he doesn't get rewarded for sending; the receiver won't receive if he doesn't get rewarded for receiving. The message won't work if it has no reward value, and the medium won't be attended to if it has no reward-giving history.

The Resource System

For commercial knowledge producers, profitability or anticipated profitability is a major incentive for diffusion of innovations. Other types of resource systems also require profitability, but usually the coinage is different: for the basic researcher it is recognition by colleagues; for the developer it may be the satisfaction in creating something that works; and, for the practitioner it may be the feedback from a satisfied client or the feeling that he has done a good job. If diffusion and utilization activities do not give consistent rewards to the resource system in terms that are meaningful to the particular sender, then they are likely to be discontinued.

The User

Profitability to the user is equally important. Rogers uses the term "relative advantage" to indicate the value return in proportion to investment of dollars, time, and effort. The spectrum

of significant rewards is, of course, vast and different users place different values on various types of reward. Perceived relative advantage is just as important as actual reward value, and the past experience of reward for utilization effort is probably even more important. Rewarding encounters with new knowledge lead to self-fulfilling prophesies that future encounters will also be rewarding. Nothing succeeds like success.

The Message

As mentioned above, the reward-value of a message is extremely important in diffusion and utilization, and the perceived probability of reward is even more important. Certainly rewards in particular times and circumstances clearly override those which have logical priority, as when some people sacrifice their lives for the liberty and happiness of others.

The Medium

The medium or strategy which has had a history of success for either senders or receivers will be effective for diffusion and utilization from two points of view: first, through reinforcement, receivers and senders have been conditioned to its use; and second, they have built an expectation that the medium, if used again, will be successful.

Certain media are more capable than others of conveying feedback to senders; hence, they are also more capable of transmitting rewards or reinforcements both positive and negative. Interpersonal exchange and direct contact with the innovation are the most effective but they are also the riskiest.

6. Proximity

We have also found from innumerable studies in different settings that a sixth factor, proximity, is a powerful predictor of utilization. When we live as neighbors, when we bump into one another and have the chance to observe and stimulate one another by reason of being in the same place at the same time, we will inevitably learn from one another. Hence, users who have close proximity to resources are more likely to use them. Anything which is easily accessible is more likely to be used. This generalization applies not only to people but also, at least by analogy, to thinking processes involving familiarity, recency, and

similarity. Proximity is also one of the factors which makes linkage more possible and hence more probable.

The Resource System

As noted earlier, the most effective resource systems are those which have easy access and linkage to other resource systems. Proximity is a major aid in bringing about this linkage and hence in promoting effective diffusion and utilization. Resource systems should also be proximate to users psychologically as well as geographically; the user should perceive them as accessible, or they will not be utilized.

The User

It follows from the above that proximity to various resource systems is important for users. However, the proximity of users to one another is also important because it increases the likelihood that users will be aware of common interests and needs, and will pool their internal resources. It also increases the likelihood that innovators in the user system will be in contact with opinion leaders, and that opinion leaders will be in contact with everybody else.

The Message

Here proximity is determined by the degree to which the user is familiar with the message -- and its relatedness and congruity with user needs. Proximity may also mean similarity and congruity with past innovations which the user has adopted.

The Medium

The technological revolution has meant the greater and greater proximity of all of us to each other. This is perhaps the most profound consequence of the telephone, television, and the jet aircraft -- they bring people together and vastly increase the potential for what Rogers calls "cosmopoliteness," the degree to which a user moves in and out of his home community and makes contact with outside groups. Technological improvements in transportation and communication are probably the largest force in accelerating the rate of change.

7. Synergy

In our first effort to bring together the findings of this report we identified six major factors, but we were left with the uncomfortable feeling that a major concept was still missing. It is only with reluctance that we suggest the rare term synergy as the name for this seventh dimension. Synergy is defined by English and English as "exerting force together or in combination, or upon the same point." For our purposes, the "same point" refers to the point in time when the user agrees to adopt an innovation. Several forces, several inputs of knowledge working together over time, produce the behavior which we identify as "knowledge utilization." On the one hand, therefore, synergy represents redundancy, the requirement that a message be repeated over and over before it gets attended to and absorbed. There is no question that a high degree of redundancy has to permeate our communication systems for them to be effective knowledge transmitters. But synergy goes beyond simple redundancy by suggesting that there should be purposeful redundancy; a variety of messages must be generated pertaining to the same piece of information and these messages must be directed at the potential user on a number of different channels in a number of different formats, and all more or less coordinated to the one goal -- adoption of innovation.

The Resource System

Successful utilization usually seems to require persistent leadership. There must be some one person or some nuclear group within the resource system that pulls together diverse resources, structuring them and developing and executing strategies for their effective dissemination and utilization, and doing so on a continuing basis.

In other words, the resource system must act synergisticly, bringing together a variety of messages and message components and focusing them in combination, in sequence, and in repetition upon the potential user.

The User

Rarely can the user be induced to adopt an innovation on the basis of one message from one source at one time. He almost always needs repeated inputs in a variety of media over an extended time from a variety of sources before he will become an adopter. Some combinations of new inputs and memories of past inputs needs to

be set in place before behavioral change comes about. This is the synergy inside the user.

The Message

As noted above, effective messages have a built-in redundancy, the main point repeated in the same way and rephrased in other ways. Moreover, the several sub-points all converge on the main point. A confluence and an aggregation of both research messages (data, theory, method) and development messages (prototypes) result in usable practical knowledge. This confluence could be called the "synergistic" quality of the message.

The Medium

No one medium by itself seems to be effective for the transfer of knowledge. Several media have to operate synergisticly to create behavioral change in a user population. All users seem to rely on a number of different sources in guiding themselves toward adoption, and different sources are significant for different users at different stages.

The persistence, or redundancy, of the transmission is an important additional aspect of media synergy. Rogers, for example, reports that adoption rate is consistently correlated with the extent of promotional effort by the change agent. Advertisers follow this principle when they repeat a television commercial over and over again, or when they back up their efforts with mailed samples, billboards, door-to-door salesmen, or giant display counters in supermarkets. This is synergy with a vengeance.

Interrelations Among Factors

As this discussion has progressed, perhaps the reader has wondered if we were covering the same territory repeatedly. There is some overlap and intercorrelation throughout this list. In the last instance, for example, we were partly seeing synergy as another way to view structuring. Proximity seemed to be highly related to and perhaps a precondition for linkage, as was openness. Reward seemed to be another precondition for effective linkage but was in turn an outcome of structure.

There also appeared to be a few contradictions among these seven. Structure, for example, can be stifling if it is not flexi-

ble and does not allow for openness. Openness, however, can lead to chaos if there is not structure. Clearly, there must be a trade-off between these two factors.

OTHER DIFFUSION AND UTILIZATION FACTORS

The seven factors listed above account for the bulk of diffusion and utilization phenomena, but there are many other important variables which perhaps deserve to be mentioned. A few of these are Familiarity, Primacy, Status, and Values.

Familiarity

Familiarity, a type of psychological proximity, is undoubtedly an important quality in the successful resource, message, and medium. But psychologists have described a process of "levelling" in which familiar-sounding messages with new content are interpreted merely as repetition of old messages. Similarly, over-familiar resource systems may not be seen as potential repositories for new and useful information.

Primacy

Primacy, or "being first," does seem to have inordinate weight in human affairs. In a message, the first segment is usually the best remembered and most influential. What comes first always seems to have a powerful force, but the force can be overcome.

Status

Status, someone or something considered "higher" in social importance, legitimacy or social power, is likely to be given more attention. But it must also be noted that status is an ambivalent variable in the diffusion and utilization process. Ambiguity of status of the resource and user may be as important as status difference per se and sometimes relatively low status resource persons are more effective knowledge conveyors than higher status or equal status resource persons.

Values

Values are the basic stop-and-go signals for human behavior and as such, presumably establish patterns or limits within which

people feel free to send and receive knowledge. This suggests that messages which clearly contradict pre-existing values will not get anywhere and those which appeal to them will get far. It also suggests that a perception of shared value will bring resource and user systems together and that perceptions of disparate values will drive them apart. Even the medium may have some "value loading" as when we reject new ideas because someone has tried to order or legislate their adoption.

GUIDELINES FOR THE PRACTITIONER

How, then, can the practitioner convert this information into workable guidelines to help improve the diffusion and utilization of knowledge within an organization? Taking all factors into account and applying them to on-the-spot situations, I make the following suggestions:

1. Define the Elements

A first step in improving diffusion and utilization is gaining a clear perspective on what is going on. Hence, at the outset, there is a need to define the elements of the diffusion and utilization activity in which you are engaged. Answers should be spelled out for each of the following questions:

a. Who or what is the resource system?

b. Who is the user (client, consumer, audience, or target group)?

c. Who are the relevant others in the user's social environment (opinion leaders, reference groups, influentials, defenders)?

d. What is the message?

e. What is the medium?

f. What is the strategy?

2. Define and Diagnose Your Own Role

It is important for you -- the diffusion and utilization change agent -- to have a clear understanding of your own role in the process. In general, two questions should be foremost in your mind at

this point:

a. Is this role viable? Can you handle the problems of overload and marginality that may be associated with it? Do you have the requisite skills and experience to bring it off successfully?

b. How are you related institutionally to the resource and user systems? Does your organizational base give you adequate visibility and legitimacy in the eyes of resource and user?

3. Make a Diagnosis of Each Element in the Activity

Having defined each element in the diffusion and utilization process, you should proceed to take a kind of inventory of each one. The diagnostic checklist represented in Figure 3 (page 46) suggests one way this might be accomplished; it serves as a guideline to help identify problems in the resource system and to play for action (i.e., what you are going to do about them). The more the practitioner is able to structure and clarify his activities in ways such as these, the more successful he is likely to be.

4. Select a Diffusion and Utilization Perspective

It should also be helpful if you identify and select one of the generalized perspectives discussed in this paper as a framework within which to build his own strategy. Each of the four perspectives -- Research, Development, and Diffusion; Social Interaction; Problem Solving; Linkage -- is probably suitable for different change agent styles in different settings and circumstances.

5. Plan a Coherent Strategy

Using your selected perspective as a guide but not as a limitation, plan out a strategy which fits your particular situation. A good strategy which probably involves step-by-step planning and execution, should account for each of the steps illustrated in Figure 4 (page 47).

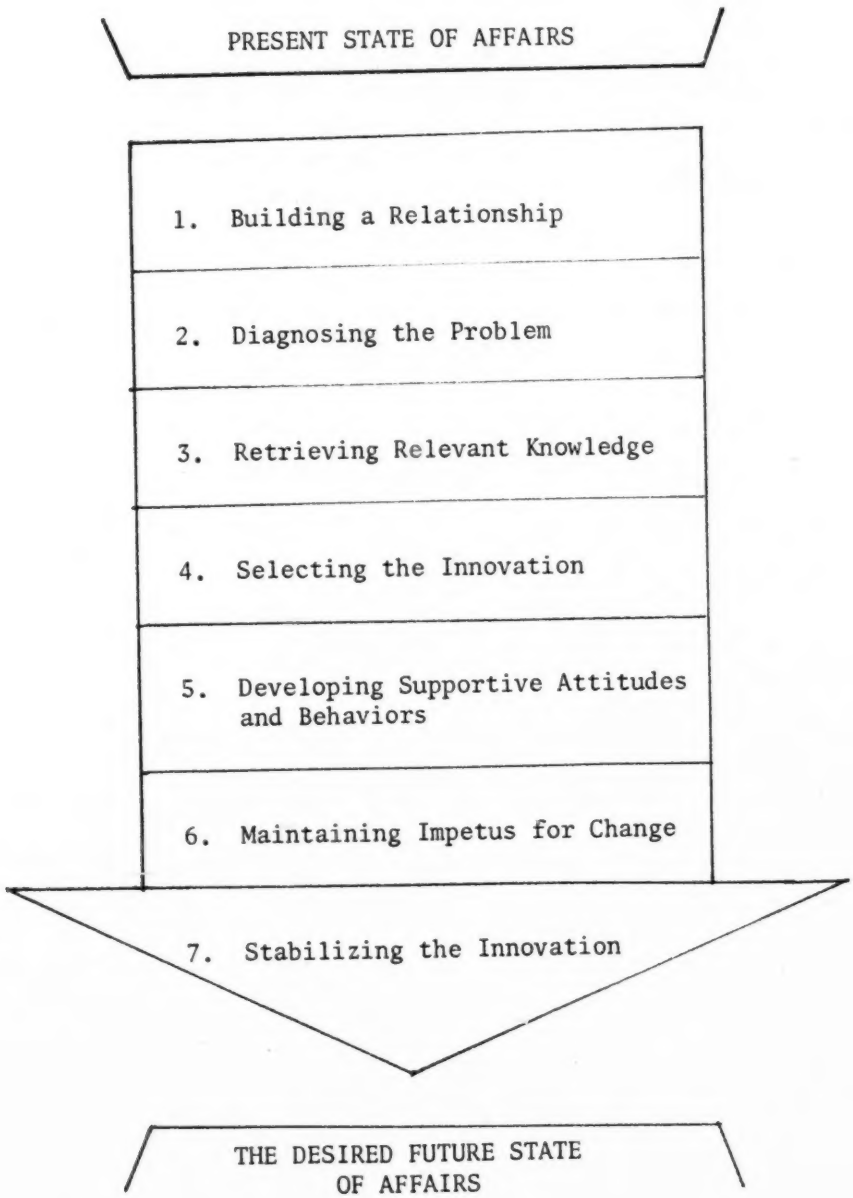
Figure 3

DIAGNOSTIC CHECKLIST

General D&U Factors	Potential Problems in the *RESOURCE SYSTEM*	and → What I Plan to Do About Them: I don't have enough info on this yet	Not applicable in this situation	This is well accounted for	Not adequate but I must live with it	Not adequate: I plan to work on it	Work done; Now OK
1. LINKAGE	1.1 Collaboration, 2-way interaction with user						
	1.2 With other resources						
	1.3 Simulation of user's problem-solving process						
2. STRUCTURE	2.1 Systematic planning of D&U efforts						
	2.2 Division of labor						
	2.3 Coordination of effort						
	2.4 Systematic client diagnosis						
	2.5 Systematic evaluation of process						
3. OPENNESS	3.1 Willingness to help						
	3.2 Readiness to be influenced by user feedback						
	3.3 ...by new scientific knowledge						
	3.4 Flexibility						
	3.5 Accessibility						
4. CAPACITY	4.1 Ability to summon & invest diverse resources						
	4.2 Skill & experience in the helping-resource person role						
	4.3 Power						
	4.4 Financial capital						
5. REWARD	5.1 Dollar - Return on Investment						
	5.2 Recognition						
	5.3 More knowledge						
	5.4 Self-esteem						
6. PROXIMITY	6.1 Closeness & ready access to diverse resources						
	6.2 Closeness & ready access to users						
	6.3 Psychological proximity to users						
7. SYNERGY	7.1 Persistence of effort						
	7.2 Diversity of effort						
	7.3 Convergence of effort						

Figure 4

A GUIDE FOR MANAGING CHANGE


PRESENT STATE OF AFFAIRS
1. Building a Relationship
2. Diagnosing the Problem
3. Retrieving Relevant Knowledge
4. Selecting the Innovation
5. Developing Supportive Attitudes and Behaviors
6. Maintaining Impetus for Change
7. Stabilizing the Innovation
THE DESIRED FUTURE STATE OF AFFAIRS

SUGGESTIONS FOR FURTHER READING

Havelock, R. G. with Guskin, A., et al. *Planning For Innovation Through Dissemination and Utilization of Knowledge*, Ann Arbor, Michigan: Institute for Social Research, Center for Research on Utilization of Scientific Knowledge, University of Michigan, July, 1969 (Second Printing January, 1971). [Price: $8.00 Hardcover]

Reviews and integrates findings from 1,000 literature sources relevant to dissemination, utilization, and planned change. This is the primary source document for the foregoing paper.

Havelock, R. G. *A Change Agent's Guide To Innovation In Education*, Englewood Cliffs, New Jersey: Educational Technology, Inc., January, 1973. [Price: $13.95 Hardcover, $8.95 Softcover]

A manual and resource handbook for field agents and consultants at all levels; follows the six step process model outlined in Figure 4.

Havelock, R. G. and Havelock, Mary C., *Training For Change Agents*, Ann Arbor, Michigan: Institute for Social Research, Center for Research on Utilization of Scientific Knowledge, University of Michigan, February, 1973. [Price: $7.00 Hardcover]

Discusses content, objectives, formats, design elements and alternative strategies for training and installing process-oriented change agents.

AN ANTHROPOLOGICAL PERSPECTIVE ON CHANGE

Francis A. J. Ianni

During the past five years, my staff at Horace Mann-Lincoln Institute and I have been doing a number of organizational studies. But since we are anthropologists by trade, our studies are conducted from a perspective different from the one usually employed for organizational analysis. For example, we have conducted a series of studies in what have been called ghetto areas. Because our perception shows that the lack of formal structure allows for the development of a number of new concepts and notions of how one goes about education, we have been working primarily with the local residents in developing new institutional structures.

We also are conducting a number of studies on organized crime -- not because we see any close correlation between organized crime and education, but because we are attempting to find if the usual analysis which describes the organization of famous families in the United States as being very similar to business and industry is really valid when looked at from an anthropological perspective. To do this, we worked from an articulated theoretical position and spent a great deal of time in the field trying to discover what the "underworld" is really like. We spent four and a half years on this project, first in Sicily and then with a local organized crime family in New York City.

In addition, we have been studying high schools and have found something which is probably true at the collegiate level also; that is, the old experimental techniques that have been used to study schools in the past are generally useless. One should look instead at an institution as a social system or, as more commonly stated, one should study the culture of the school. During the last four years, we have looked at high schools as two cultures: an adult culture which consists of administrators, teachers, and to some extent parents, and a student culture which is quite different from the other culture. Viewed from this perspective, we found that the real role of education in high schools is one of mediation between these two cultures. This led us to believe that the great stress being placed on the individualization of instruction both on the university and the high school levels is doomed to failure.

All these studies point to a basic conclusion. Trying to bring about change by changing individuals is meaningless in itself. The only way to bring about individual change is first to bring about

institutional change. Only then will it be possible for the individual to make the kinds of supportive connections that will allow him to change.

Indeed, these are my biases. I am firmly convinced that change must come about through institutional patterns rather than by changing individual behavior and that consequently, individualizing instruction makes no sense. Let me say this differently. I am fairly certain that we have spent far too little time building group instructional processes in such a way that we can foresee the great changes that are coming in American society and throughout the world in terms of population, growth, etc. Group supportive instruction and group supportive behavior should be developed, for the S.P.A. type of junior psychologist devotion to clinical change is doomed to failure. We should start concentrating on building student structures, faculty structures, and ways of mediating between the two so that there is a permanence of exchanges.

Another bias of mine is that for a great deal of my life I have been an activist to bring about change. And, I am convinced that any action program that is not heavily based upon theory which contributes to the theory of change will ultimately fail. To put that differently, there is no cumulative experiential basis for change unless change comes out of a theoretical position. Consequently, it is extremely important that you establish a firm conceptual framework for change which is informed by a variety of behavioral sciences notions. Unless one does have this interplay between theory and action, one simply is not going to be successful in institutionalizing change.

Another bias I have is that I believe that much of our educational research relating to institutional change has been theory vindication. Thus, in effect what we have done is to develop a theory of change, a theory of institutional progress, a theory of human behavior and then to go out in the field and vindicate those theories by finding exactly what was sought. Let me put it this way: what people do in the university is to build little conceptual boxes and then go out in the field and fill them up. This is not testing, this is vindication. I think it is much more important to develop some conceptual background, but then approach the field without a preconceived notion of what will happen or what one will find.

Theories of Change: Three Traditional Approaches

As I look at theories of change, it appears to me that there are four major kinds of change theory in existence at the present time. I now would like to discuss three of them. One is what I call the mechanical or mechanistic model of change. In this model what one

does is set up a time-line sequence which deals with change. The basic notion behind this is that change represents the difference in time between point A and point B. This is very difficult for me to deal with because change in terms of institutional change is timeless. To put it differently, a chronological notion of change in institutions is meaningless. For example, usually when projections of change in time are set up in a university, constancy of surrounding conditions is assumed. This is a notion which is developed from an experimental research technique that maintains that a person holds certain factors constant while he manipulates others. Quite frankly, I think this is impossible to do; the world just isn't that way.

The second major kind of change theory is the systems model which says, quite simply, that there are inputs, processes, and outputs (or outcomes), and that the way one looks at change is essentially a technique of measuring input, establishing a process, and then measuring output. One talks about change in terms of what went in and what came out. While this is a good model for certain kinds of change, my problem in applying it to educational change is that the input analysis and the output analysis are very often quite different. Moreover, our knowledge of such basic issues as "are there differences in intelligence between males and females" is very much lacking. Also, one has to know how long the processes that are applied in the systems approach will take to implement. Very often, this is something we do not know. My basic point is this: in the input-process-output model, one has great difficulty in relating the input with a theoretical position. Even more important in terms of education, we simply do not have the experience in measuring output in any realistic fashion.

The third model of change is called the organizational analysis model. It is by far the most popular one and to my mind it makes the greatest sense. But it again suffers from three rather basic problems:

1. The model is organization oriented. Most organization analysis studies tend to take a structuralist approach which says that this is the way the organization is structured and that because the organization is structured that way, if we want to change behavior, we must change the structure of the organization. For example, change in universities or colleges usually takes place by moving the various organizational boxes around or, more frequently, by playing musical chairs with the people who are in the boxes -- you move them from place to place.

2. We tend to believe that the hierarchical organizational chart really describes what goes on, and that just is not true. It does not happen that way. For example, any number of professors can have more

influence than a dean or president, even though that is not the way it is indicated on the chart. So we ask the influential professor to accept a position in one of the organizational boxes and, in the trade, get an ineffective dean for an effective professor. This happens over and over again because it is assumed that a person's leadership skills can be exercised anyplace. In short, we simply have not done the sort of behavior analysis necessary to find out what is needed to get the job done.

3. There is an assumption that not only is the hierarchy accurate, but that communication flows evenly from top to bottom and back again. Communication just does not work that way. In the process of communication, there is an inherent process of changing the message and that process simply has not been studied; we have no notion of how various segments of the academic hierarchy make changes in communication.

Thus, the organizational analysis model is a good one but it fails often because it tends to look at organization from a sociological perspective and, as such, does not treat educational organization as anything inherently different or special. I think this is a very wrong approach, and a fundamental study of the educational organization must be made if we are to be successful in implementing change.

Values -- A Missing Element

One final point, and then I will speak about a model for change which does make some sense. In organizational analysis, in systems theory, or in the mechanical model, we simply do not deal with the most fundamental question in organizational change. That is the question of values. A little later, I want to plead with you to start looking at this more carefully. Indeed, what I want to stress is that the only way you are going to bring about change is to bring about institutional change, and unless you change the institution, individuals simply will not change. Essentially the only way I know to bring about change is to change values. When a value structure changes, then the rules of behavior change, and when the rules of behavior change, people change, too.

For example, we have been doing some work in the last seven or eight months for the National Commissioner on Criminal Standards and Goals, in which we are trying to change the current ethic of correctional education in this country and the whole concept of dealing with crime in the United States. In our work we are trying to move from the traditional value notion that "crime does not pay." We have attempted to do this either by incarcerating the criminal or by using a variety of psychological and social work and other techniques to

attempt to change his mind. As it is presently constituted, our system of dealing with crime is doomed to failure -- first, because you cannot sustain the change and second, and even more importantly, anybody knows that "crime does pay!" All you have to do is read the newspaper.

Now, how do you bring about change in this situation? Well, first you must change the prevailing values and move to a notion which says that "crime is too costly for society" and consequently it must be the responsibility of groups in American society. This is a very simple change, but one which leads to tremendous differences in terms of how one organizes and how one mobilizes a society to fight crime. It means that you move from concentrating on individuals to concentrating on supportive structures to make the value change possible.

Now, there is the very real problem of whose responsibility it is to deal with the value situation. My experience with most administrators in education shows me that they are always willing to talk about values but are completely unwilling to deal with them. If you asked me what the major value was behind the New York City school system or Columbia University, I could give you a beautiful glossy speech, but it would not face the real issues. For example, who is to say that the people of Virginia cannot teach their children that the slaves were happy or that the people of Harlem cannot teach their children that the history of the United States is 250 years of racial genocide? Whose responsibility is it to say that either of these are adequate or inadequate as a value orientation to American society? We simply have ignored values largely because we have approached them from a glossy, generalized position. What we have tended to do is to start with values which we think are part of the academic system and consequently arise directly out of American culture, and then try to establish an educational system and program to support those supposed values in a system ill-designed to do so.

I would like to stress that values are so tremendously important that what one has to do is to find what the current value system is and to deal with that. In terms of educational minorities, for example, we have dealt for a long time with a concept of minority education which was developed during the 1920's and 1930's when the vast number of the immigrants who came to this country from southern and eastern Europe wanted to become white and middle class like everybody else. Hence, we developed an educational system called Americanization which had at its base values "let's make everybody white and middle class." Now we are trying to educate minority groups which have a different value structure that says "we do not want to become white and middle class; we want to maintain our own image and identity." And, what we have tried to do is to fit that value system into an

existing structure in a totally impossible way.

The Anthropological Perspective as a Model for Change

This is a different view of how one establishes policy. That is, traditionally we have established policy from the top and let it flow down. Moreover, in reaction to student activism, we have destroyed policy entirely and said " tell us what we should be doing." There is something in between these two polar positions that makes a great deal of sense. This perspective suggests that we should change our view of the administrator's role from one of management specialist to one of an individual whose responsibility it is to study and understand his organization through the same techniques used by an anthropologist.

What this means is that the administrator, rather than designing policy, discovers policy by looking at rules which are supportive of that behavior. This is a very difficult thing to do and do well. Let me say this another way: if you really want to bring about change in an institution, you cannot move from some idealized concept of your organization to what you want it to be like, but realistically you have to move from where it is at the moment to what you want it to be. To do what I just described, there are techniques existing in the social sciences that allow a person to really have a fundamental grasp of behavioral aspects of his organization. Before you attempt to use these techniques, however, let me summarize the six major points that are inherent in the anthropological approach to organizational analysis.

1. If we are going to adapt this model of change, our conception of organizations must change. We have traditionally thought of institutions as fixed monolithic structures, when actually they are behavioral structures. The real institution is the code of rules of behavior which make up that institution, not the institution itself. Let me put that differently; when we talk about the college of the future, what we tend to describe is what the physical facilities are going to be like, what the curriculum is going to be like, or how it is going to be administered, but we do not talk about how people are going to behave. It may very well be that the behavioral implications are far more important than the structure, physical plant, or curriculum. Indeed, it may be that the way people relate to each other or the codes of behavior are more critical than anything else.

Hence the first important point is that a behavioral view of an institution says what a person should look at is the codes of rules by which people behave. Let me give you an example: if you want to learn how to play bridge, there are perhaps two ways in which you can

learn. You can buy a good book, learn all about it and then go out and lose your shirt. But a much better way to learn to play is to watch people play bridge for a period of time. In that way, you not only discover the ground rules for playing bridge, but you can also discover how to play well because you can watch people in the operation of playing bridge. What I am trying to stress is that if you look at a behavioral structure of an institution, you are learning the rules through actual observation.

2. Human behavior and particularly institutional behavior is based upon a process called socialization. The way people are fitted into institutions is through socialization. Traditionally, we talk about socialization in terms of socializing youngsters and then we forget about the concept. We do not look at the importance of socializing adults into new institutional structures, even though this is extremely critical to society as a whole. This is a difficult concept, so let me talk about it in a different way.

The real function of university education, in fact of all education, is to improve the decision-making ability of people -- how to make better judgments, how to evaluate evidence, how to apply those judgments. The only way we can do this is by firmly implanting in the students a system or rules of behavior which they can take with them from the institution in such a way that it becomes part of their behavior system.

3. To bring about change in an institution it becomes necessary to understand the fundamentals of that institution. The only way to do this is to establish a research scheme in which practitioners are intimately involved. If we want to bring about change in our institutions, then we not only have to understand that institution but must accept the fact that the old techniques of looking for models elsewhere really do not make any difference. What we really need is to establish a system whereby common techniques of observation and recording of information about similar institutions are part of the training of administrators.

4. If we are going to bring about change, we are going to do so by changing rules of behavior rather than by changing structure. We also have to be able to find some way of establishing and enforcing the new rules. In other words, when one looks at attempts to change an institution, what normally happens is that after going through a lengthy process, someone announces a set of rule changes and then breathes a sigh of relief and forgets about it. However, if we really are serious about instigating change in an institution, we have to set up a planning and evaluation process which looks at the effects of those changes in terms of the institution.

5. In order to evaluate the institution in terms of the effects of those changes, we must ask "what does evaluation really mean?" There are two different kinds of evaluation. One can be called summative, that is, the traditional way in which we evaluate learning experiences. It is based upon pre- and post-test notions that measure what happens some place in between. The other type of evaluation is formative evaluation -- a process which is still a little suspect to most scientifically-oriented people. If the real purpose of the evaluation is to bring about change, then the program must include a process which permits constant evaluation. Instead of keeping evaluation a secret, all of the findings are made very open -- even if outsiders are used.

6. I have talked about institutions as if they are viable, as if they are going to exist forever, as if the possibility for anarchy is not there, as if there really is some reason why universities should continue. When we talk about change in any of these models, there is an assumption that the institution that we want to change is worth saving. But change can mean replacement as well as adjustment. In the technological world, replacement is much more frequent than adjustment. One of the possibilities of bringing about change in higher education is that we may abolish it. I know this sounds like 1968, but there is the possibility of simply doing away with institutions of higher education and taking that function and transferring it elsewhere.

What I am suggesting is that one of the major problems in value reference change is that we are very often unwilling to let go of what exists. This happens on several levels. In the universities there have been two preferred traditional styles of change -- debate and rational change. I believe in evolutionary change. It is part of our training. We look at change through the evolutionary process of better and better and better. That was very good when we were a liberal, forward-looking institution surrounded by a conservative society. But the problem now is that we are a conservative institution surrounded in many ways by revolutionaries. Thus, when we talk about debate, they talk about confrontation. Where we talk about evolution, they talk about revolution. The two points of view simply are not congruous. Indeed, if we are going to talk about change on the outside we have got to start attending to change on the inside. However, in more cases than not we are simply unwilling to let go of what exists.

For example, I was in Washington, D.C. during the great curriculum revolution in the elementary and secondary schools. It was a very simple process; what the government did was to go to the university people to ask them how to change the public school. There were any number of very good, very important professors of mathematics or

physics who were perfectly willing to go to the government and say, "Here's how you have to change the system down there," but what they did had no effect upon changing curriculum in the institution of higher education. Consequently, what happened was that many programs which could have been very successful were terminated after the high school level because we were not willing to bring about the same change in higher education. It is always much easier to deal with institutions other than your own, for it is characteristic of change that we are always willing to look at change outside our organization rather than inside it.

Thus, I would enjoin you to consider the very simple notion that the institution of higher education has served its purpose and that there are other ways of doing things that make better sense. I am not suggesting that we destroy the central concept of the university but rather wish to say "Let's forget about the structure for a while and let's talk about the function and what is the best mechanism, the best structure, for making certain that that function continues to do what it is supposed to do." This is something that we are very unwilling to do, for we prefer to start with existing structures and ask how to adjust them. But rather than relying on this approach, our first question should be, "Should we destroy the existing structure and start a new one?" That is a question that we are very unwilling to ask.